



JIANGSU CHANGJIANG ELECTRONICS TECHNOLOGY CO., LTD

TO-92 Plastic-Encapsulate Transistors

2N3906

TRANSISTOR (PNP)

FEATURE

Power dissipation

$$P_{CM} : 0.625 \text{ W (Tamb=25°C)}$$

Collector current

$$I_{CM} : -0.2 \text{ A}$$

Collector-base voltage

$$V_{(BR)CBO} : -40 \text{ V}$$

Operating and storage junction temperature range

$$T_J, T_{stg}: -55^\circ\text{C to } +150^\circ\text{C}$$

TO-92

1.EMITTER

2.BASE

3. COLLECTOR



ELECTRICAL CHARACTERISTICS (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C = -100\mu\text{A}$, $I_E = 0$	-40			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C = -1 \text{ mA}$, $I_B = 0$	-40			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E = -100\mu\text{A}$, $I_C = 0$	-5			V
Collector cut-off current	I_{CBO}	$V_{CB} = -40 \text{ V}$, $I_E = 0$			-0.1	μA
Collector cut-off current	I_{CEO}	$V_{CE} = -40 \text{ V}$, $I_B = 0$			-0.1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -5 \text{ V}$, $I_C = 0$			-0.1	μA
DC current gain	$h_{FE(1)}$	$V_{CE} = -1 \text{ V}$, $I_C = -0.1 \text{ mA}$	60			
	$h_{FE(2)}$	$V_{CE} = -1 \text{ V}$, $I_C = -1 \text{ mA}$	80			
	$h_{FE(3)}$	$V_{CE} = -1 \text{ V}$, $I_C = -10 \text{ mA}$	100		400	
	$h_{FE(4)}$	$V_{CE} = -1 \text{ V}$, $I_C = -50 \text{ mA}$	60			
	$h_{FE(5)}$	$V_{CE} = -1 \text{ V}$, $I_C = -100 \text{ mA}$	30			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10 \text{ mA}$, $I_B = -1 \text{ mA}$			-0.25	V
		$I_C = -50 \text{ mA}$, $I_B = -5 \text{ mA}$			-0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -10 \text{ mA}$, $I_B = -1 \text{ mA}$	-0.65		-0.85	V
		$I_C = -50 \text{ mA}$, $I_B = -5 \text{ mA}$			-0.95	V
Output capacitance	C_{obo}	$V_{CB} = -5 \text{ V}$, $I_E = 0$, $f = 100 \text{ KHz}$			4.5	pF
Input Capacitance	C_{ibo}	$V_{EB} = -0.5 \text{ V}$, $I_E = 0$, $f = 100 \text{ KHz}$			10	pF
Noise figure	NF	$V_{CE} = -5 \text{ V}$, $I_C = -100\mu\text{A}$, $f = 1 \text{ KHz}$, $R_S = 1 \text{ K}\Omega$			4	dB
Transition frequency	f_T	$V_{CE} = -20 \text{ V}$, $I_C = -10 \text{ mA}$ $f = 100 \text{ MHz}$	250			MHz
Delay Time	t_d	$V_{CC} = -3 \text{ V}$, $V_{BE} = -0.5 \text{ V}$, $I_C = -10 \text{ mA}$, $I_{B1} = -1 \text{ mA}$			35	ns
Rise Time	t_r				35	ns
Storage Time	t_s	$V_{CC} = -3 \text{ V}$, $I_C = -10 \text{ mA}$ $I_{B1} = I_{B2} = -1 \text{ mA}$			225	ns
Fall Time	t_f				75	ns

CLASSIFICATION OF $h_{FE(3)}$

Rank	O	Y	G
Range	100-200	200-300	300-400